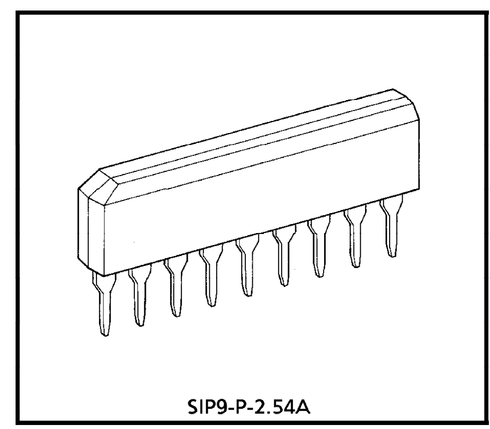
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA8125S

DUAL PRE-AMPLIFIER

The TA8125S is dual output preamplifier designed for car or home use.



SIP9-P-2.54A

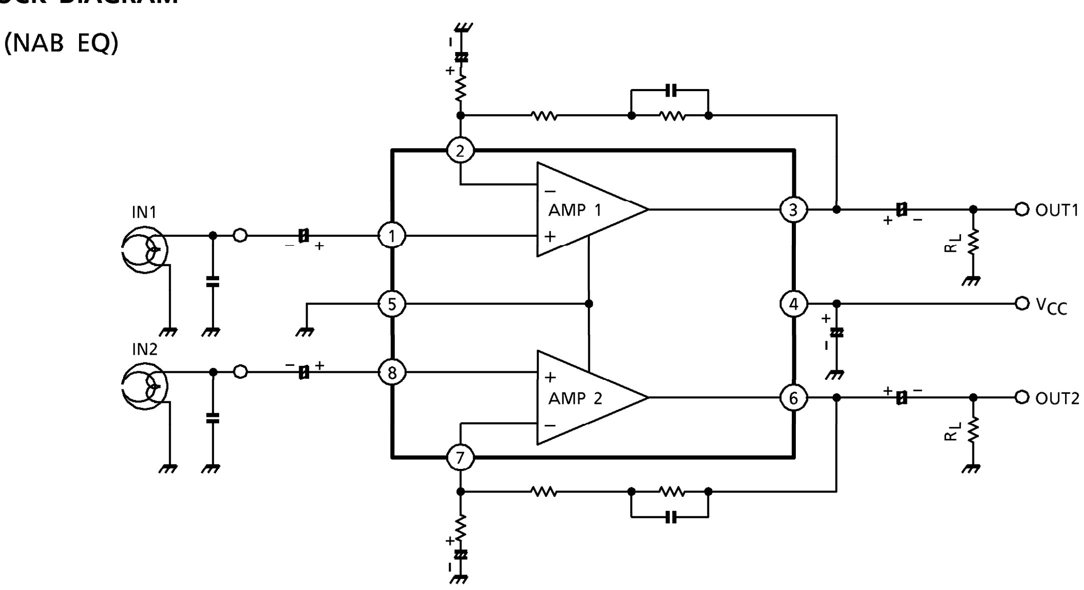
Weight : 0.92g (Typ.)

FEATURES

- High Open Loop Voltage Gain
  : $G_{VO} = 100dB$ (Typ.) at f = 1kHz
- Excellent Channel Separation and High Ripple Rejection
  : $CH_{sep} = 65dB$ (Typ.)
  ($f = 10kHz$, $R_g = 2.2k\Omega$, $V_{OUT} = 0.775V_{rms}$ (0dBm))
  : R.R. = 50dB (Typ.)
  ($f_{ripple} = 100Hz$, $R_g = 2.2k\Omega$, $V_{OUT} = 0.775V_{rms}$ (0dBm))
- Low Noise
  : $V_{NI} = 1.0\mu V_{rms}$ (Typ.) at $R_g = 2.2k\Omega$, BW = 20Hz~20kHz, NAB EQ
- Wide Operating Supply Voltage Range : $V_{CC\,(opr.)} = 6\sim16V$ (Ta = 25°C)

BLOCK DIAGRAM

(NAB EQ)



MAXIMUM RATINGS ($Ta = 25°C$)

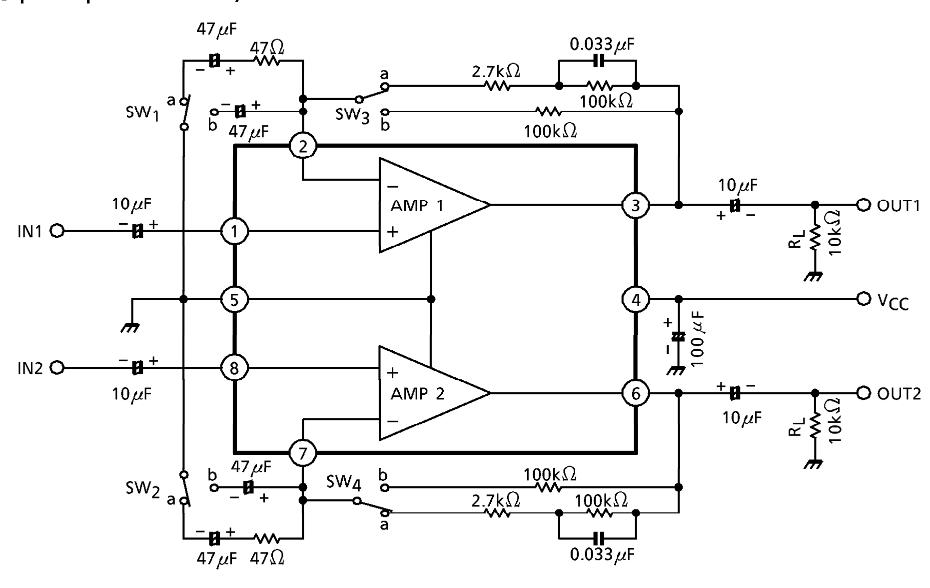
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	16	V
Power Dissipation (Note)	P_D	700	mW
Operating Temperature	T_{opr}	−30~80	°C
Storage Temperature	T_{stg}	−55~150	°C

(Note) Derated above Ta = 25°C in the proportion of 5.6mW / °C.

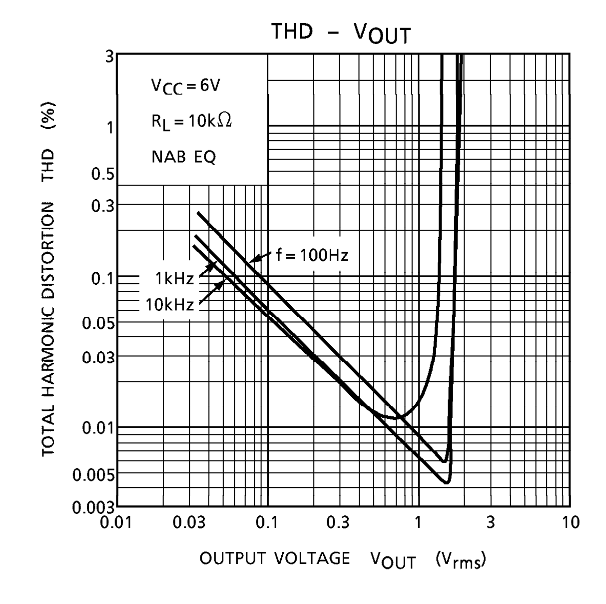
ELECTRICAL CHARACTERISTICS
(Unless otherwise specified, $V_{CC} = 6V$, $f = 1kHz$, $R_g = 600\Omega$, $R_L = 10k\Omega$, $Ta = 25°C$)

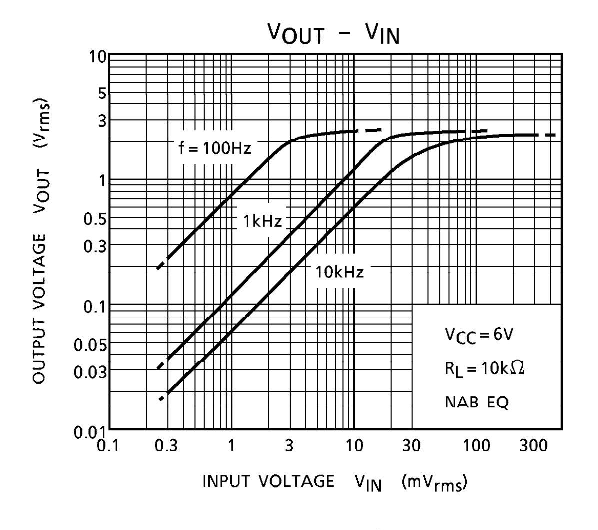
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ}	—	$V_{IN} = 0$	—	3	6	mA
Voltage Gain	G_{VO}	—	$V_{OUT} = 7.75\mu V_{rms}$ (−100dBm)	75	100	—	dB
	G_V	—	$V_{OUT} = 0.775V_{rms}$ (0dBm)	38.5	41.5	44.5	dB
Maximum Output Voltage	V_{OM}	—	THD = 1%	1.0	1.8	—	V
Equivalent Input Noise Voltage	V_{NI}	—	$R_g = 2.2k\Omega$, B.W = 20Hz~20kHz	—	1.0	1.7	μV_{rms}
Input Resistance	R_{IN}	—	—	50	150	—	kΩ
Total Harmonic Distortion	THD	—	$V_{OUT} = 0.775V_{rms}$ (0dBm)	—	0.04	0.25	%
Channel Separation	CH_{sep}	—	f = 10kHz, $V_{OUT} = 0.775V_{rms}$ (0dBm)	—	65	—	dB
Ripple Rejection Ratio	R.R.	—	f = 100Hz, $R_g = 2.2k\Omega$	—	50	—	dB

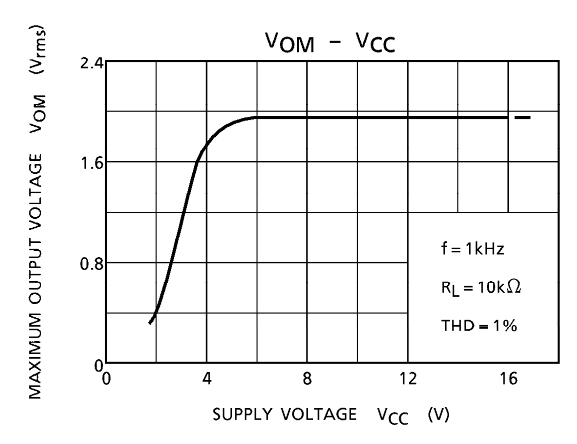
TEST CIRCUIT (⑨pin open or GND)

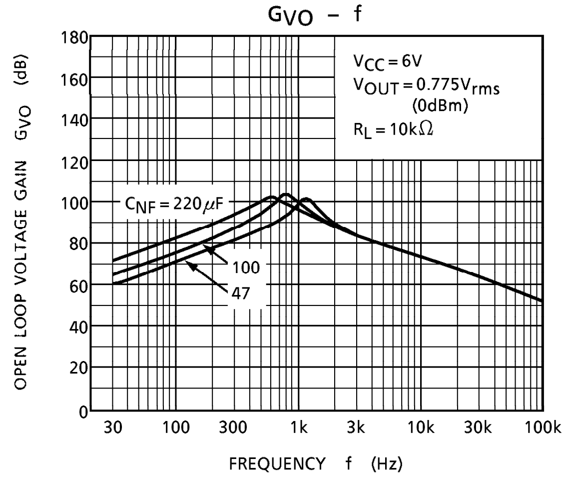


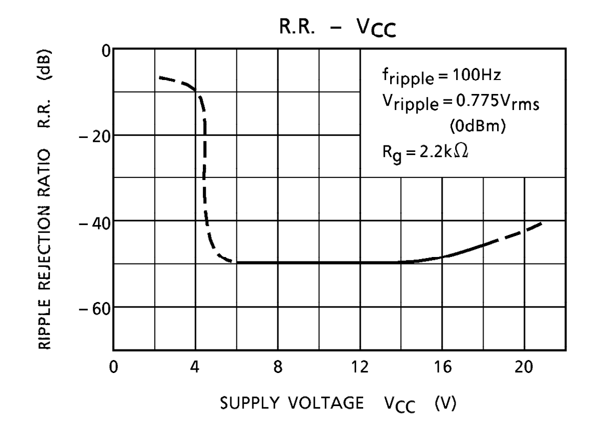
PIN⑨ : NC
(*) G_{VO} : SW_1~SW_4→b SIDE

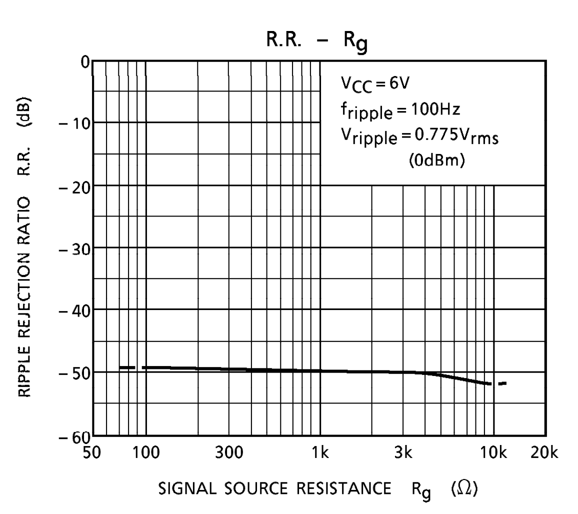

THD – VOUT
VCC = 6V
RL = 10kΩ
NAB EQ
f = 100Hz
1kHz
10kHz
TOTAL HARMONIC DISTORTION THD (%)
OUTPUT VOLTAGE VOUT (Vrms)

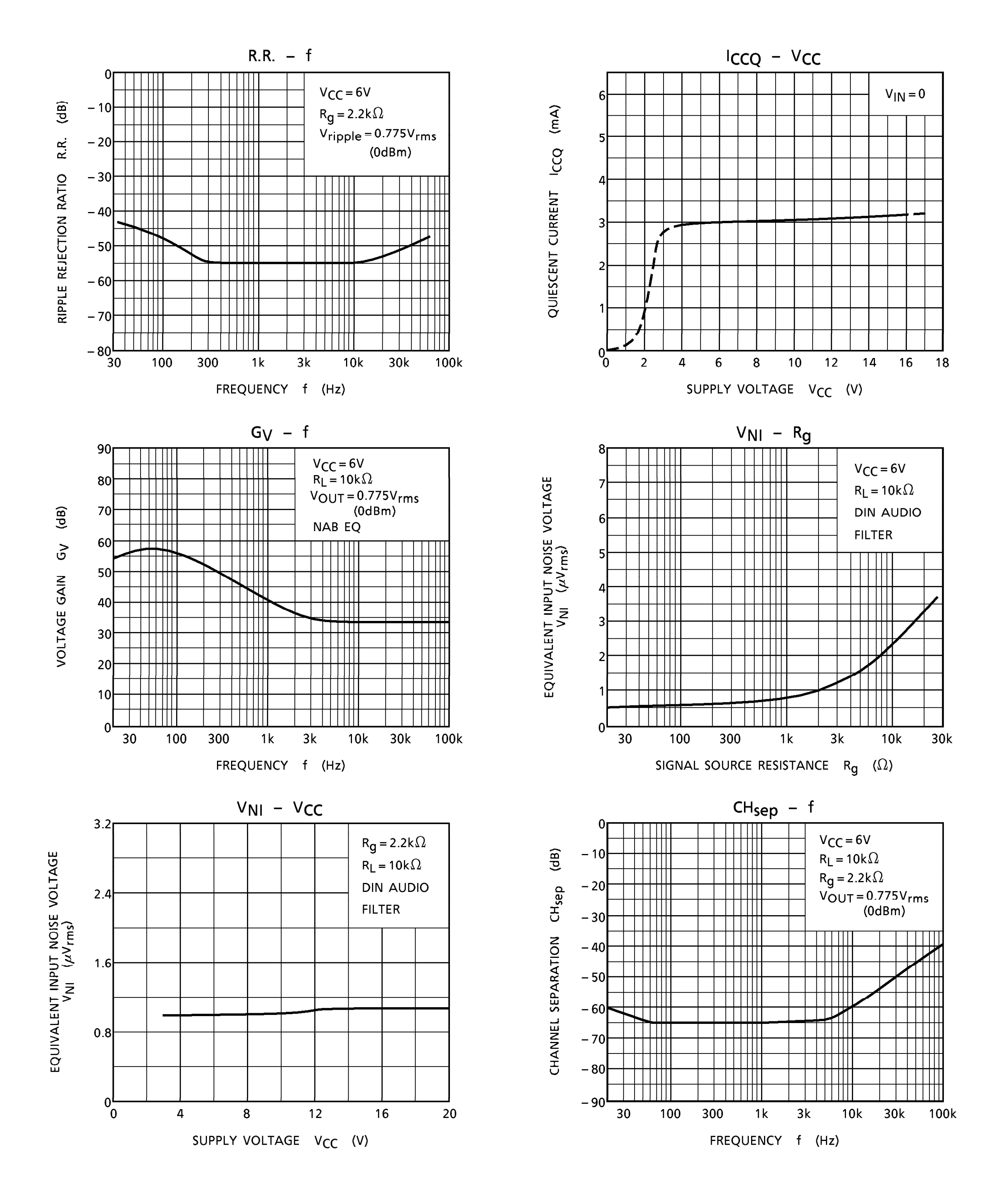

VOUT – VIN
f = 100Hz
1kHz
10kHz
VCC = 6V
RL = 10kΩ
NAB EQ
OUTPUT VOLTAGE VOUT (Vrms)
INPUT VOLTAGE VIN (mVrms)

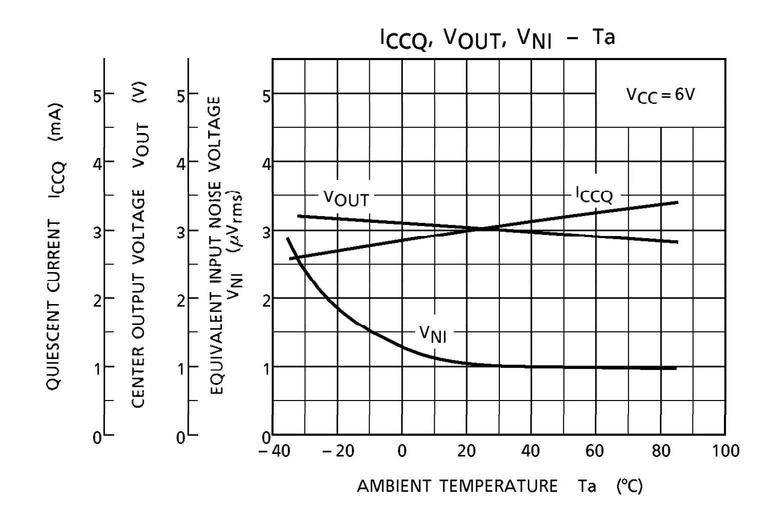

VOM – VCC
f = 1kHz
RL = 10kΩ
THD = 1%
MAXIMUM OUTPUT VOLTAGE VOM (Vrms)
SUPPLY VOLTAGE VCC (V)


GVO – f
VCC = 6V
VOUT = 0.775Vrms
(0dBm)
RL = 10kΩ
CNF = 220μF
100
47
OPEN LOOP VOLTAGE GAIN GVO (dB)
FREQUENCY f (Hz)

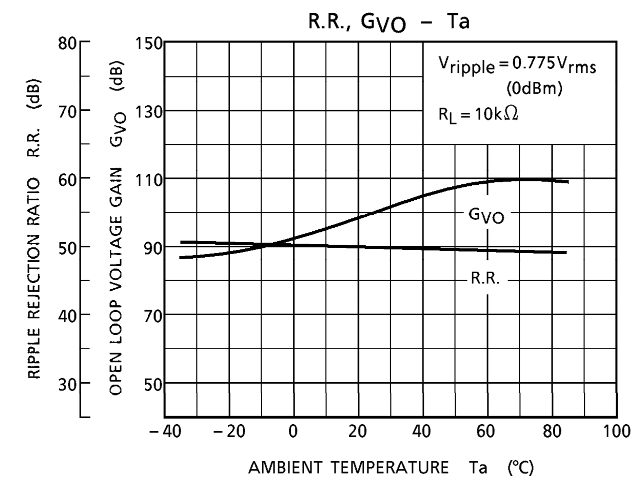

R.R. – VCC
fripple = 100Hz
Vripple = 0.775Vrms
(0dBm)
Rg = 2.2kΩ
RIPPLE REJECTION RATIO R.R. (dB)
SUPPLY VOLTAGE VCC (V)


R.R. – Rg
VCC = 6V
fripple = 100Hz
Vripple = 0.775Vrms
(0dBm)
RIPPLE REJECTION RATIO R.R. (dB)
SIGNAL SOURCE RESISTANCE Rg (Ω)

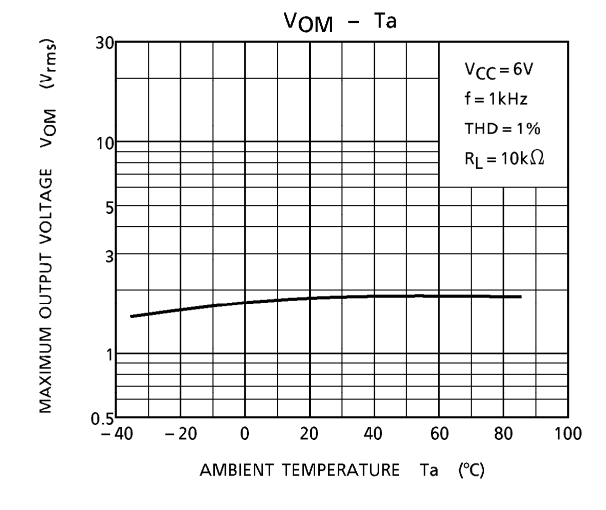

R.R. – f
V_{CC} = 6V
R_g = 2.2kΩ
V_{ripple} = 0.775V_{rms} (0dBm)
RIPPLE REJECTION RATIO R.R. (dB)
FREQUENCY f (Hz)
I_{CCQ} – V_{CC}
V_{IN} = 0
QUIESCENT CURRENT I_{CCQ} (mA)
SUPPLY VOLTAGE V_{CC} (V)
G_V – f
V_{CC} = 6V
R_L = 10kΩ
V_{OUT} = 0.775V_{rms} (0dBm)
NAB EQ
VOLTAGE GAIN G_V (dB)
FREQUENCY f (Hz)
V_{NI} – R_g
V_{CC} = 6V
R_L = 10kΩ
DIN AUDIO FILTER
EQUIVALENT INPUT NOISE VOLTAGE V_{NI} (μV_{rms})
SIGNAL SOURCE RESISTANCE R_g (Ω)
V_{NI} – V_{CC}
R_g = 2.2kΩ
R_L = 10kΩ
DIN AUDIO FILTER
EQUIVALENT INPUT NOISE VOLTAGE V_{NI} (μV_{rms})
SUPPLY VOLTAGE V_{CC} (V)
CH_{sep} – f
V_{CC} = 6V
R_L = 10kΩ
R_g = 2.2kΩ
V_{OUT} = 0.775V_{rms} (0dBm)
CHANNEL SEPARATION CH_{sep} (dB)
FREQUENCY f (Hz)



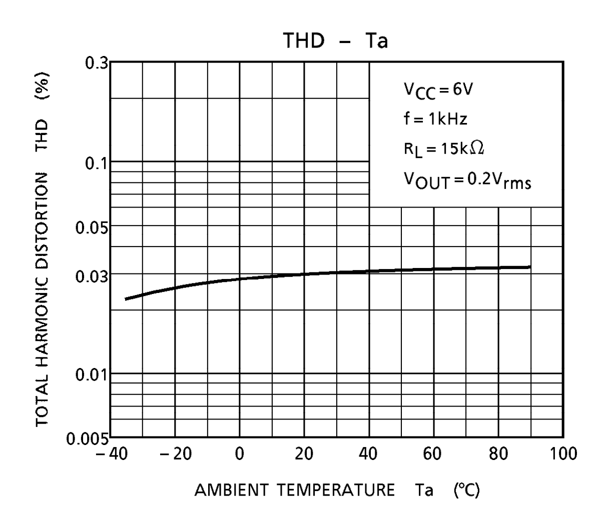
I_{CCQ}, V_{OUT}, V_{NI} – Ta
V_{CC} = 6V
V_{OUT}
I_{CCQ}
V_{NI}
QUIESCENT CURRENT I_{CCQ} (mA)
CENTER OUTPUT VOLTAGE V_{OUT} (V)
EQUIVALENT INPUT NOISE VOLTAGE V_{NI} (μV_{rms})
AMBIENT TEMPERATURE Ta (°C)



R.R., G_{VO} – Ta
V_{ripple} = 0.775V_{rms} (0dBm)
R_L = 10kΩ
G_{VO}
R.R.
RIPPLE REJECTION RATIO R.R. (dB)
OPEN LOOP VOLTAGE GAIN G_{VO} (dB)
AMBIENT TEMPERATURE Ta (°C)



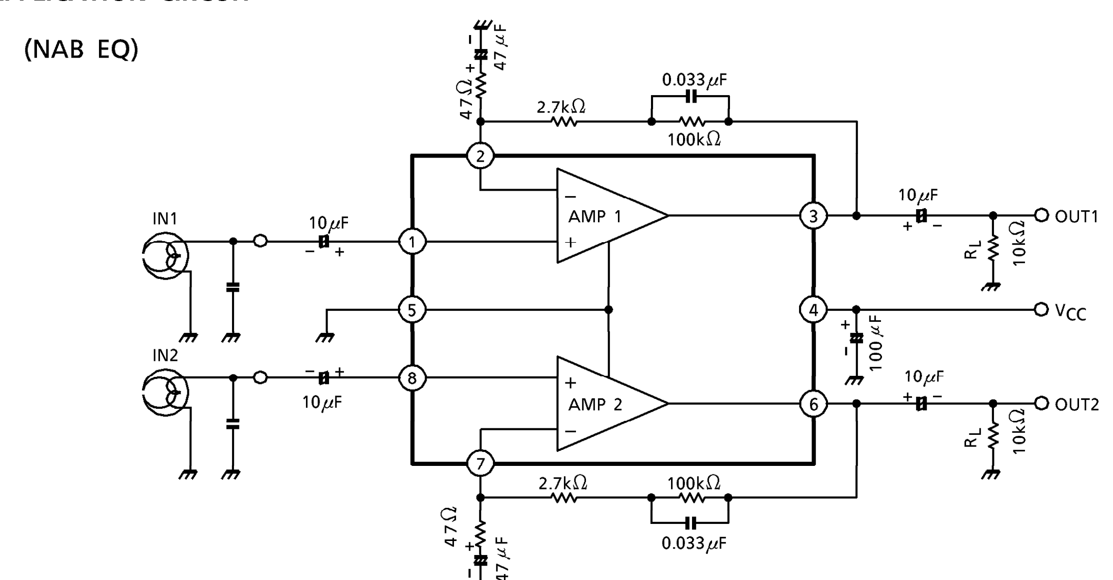
V_{OM} – Ta
V_{CC} = 6V
f = 1kHz
THD = 1%
R_L = 10kΩ
MAXIMUM OUTPUT VOLTAGE V_{OM} (V_{rms})
AMBIENT TEMPERATURE Ta (°C)



THD – Ta
V_{CC} = 6V
f = 1kHz
R_L = 15kΩ
V_{OUT} = 0.2V_{rms}
TOTAL HARMONIC DISTORTION THD (%)
AMBIENT TEMPERATURE Ta (°C)

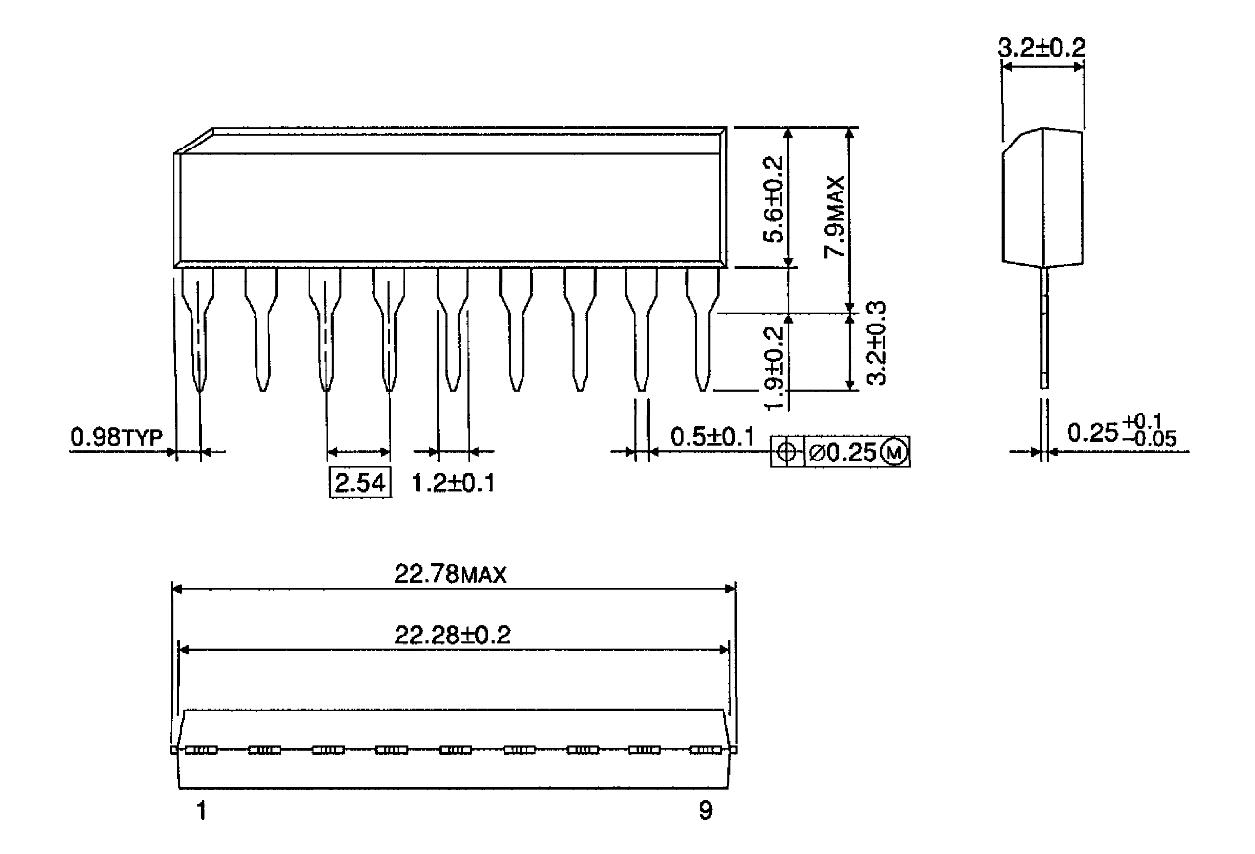
APPLICATION CIRCUIT

(NAB EQ)



OUTLINE DRAWING
SIP9-P-2.54A

Unit : mm



Weight : 0.92g (Typ.)